

4-5

Practice

Form K

Writing a Function Rule

Write a function rule that represents each sentence.

- 8 less than one third of x is y . $\frac{1}{3}x - 8 = y$
- 12 more than the quotient of a number t and 7 is v . $12 + \frac{t}{7} = v$
- z is 6 more than twice y . $z = 6 + 2y$
- 10 more than 8 times a number a is b . $10 + 8a = b$

For Exercises 5–7, write a function rule that represents each situation.

- The price p of a large, cheese pizza is \$7.95 plus \$0.75 for each topping t on the pizza.
 $p = 7.95 + 0.75t$
- Jaquelyn's earnings m are a function of the number of lawns n she mows at a rate of \$12 per lawn.
 $m = 12n$
- The total fees f of a book club membership are \$10 per month m and a one-time administrative fee of \$4.75.
 $f = 10m + 4.75$
- Eric is 2 years younger than 2 times his sister's age. Write a rule that represents Eric's age a as a function of his sister's age s . How old is Eric if his sister is 11?

$a = \text{Eric's age}$

$a = 2s - 2$

$s = \text{sister's age}$

4-5

Practice (continued)

Form K

Writing a Function Rule

9. An online music club charges \$5.75 for the first music download and \$2 for each additional download per month. Write a rule for describing the total monthly fees f as a function of additional downloads d . What are the fees for 15 music downloads in a month?

$$f = 5.75 + 2(d-1)$$

downloads -
add'l downloads = 1st download

$d = 15$ downloads

$$f = 5.75 + 2(15-1)$$

$$f = 5.75 + 2(14)$$

$$f = 5.75 + 28$$

$$f = \$33.75$$

10. Write a function rule for the area of a rectangle whose length is 6 ft more than its width. What is the area of the rectangle when its width is 12 ft?



$$A = lw$$

$$A = (l+w)(w)$$

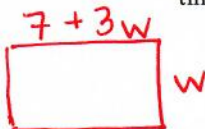
$w = 12$ ft;

$$A = (l+12)(12)$$

$$A = (18)(12)$$

$$A = 216 \text{ ft}^2$$

11. Write a function rule for the area of a rectangle with a length 7 m more than three times its width. What is the area of the rectangle when its width is 3 m?



$$A = lw$$

$$A = (7+3w)(w)$$

$w = 3$ m;

$$A = (7+3w)(w)$$

$$A = (7+9)(3)$$

$$A = (16)(3)$$

$$A = 48 \text{ m}^2$$

12. Write a function rule for the area of a triangle with a base 10 cm less than 8 times its height. What is the area of the triangle when its height is 5 cm?



$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(8h-10)(h)$$

$h = 5$ cm;

$$A = \frac{1}{2}(8(5)-10)(5)$$

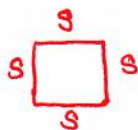
$$A = \frac{1}{2}(40-10)(5)$$

$$A = \frac{1}{2}(30)(5)$$

$$A = \frac{1}{2}(150)$$

$$A = 75 \text{ cm}^2$$

13. Reasoning Is the graph of a function that relates a square's side length to its perimeter *continuous* or *discrete*? Explain.



$$P = 4s$$

continuous because length of the sides can be real #'s (fraction & decimals) greater than 0.

14. Open-Ended Describe a real-world situation that can be represented by a linear function. Describe a change that could occur in this situation that would change it to a nonlinear function.

Answers can vary.